

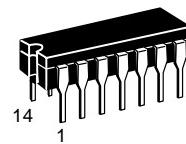
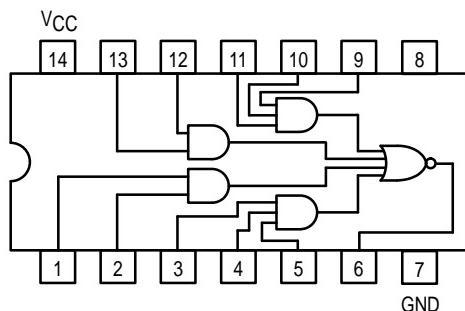


**MOTOROLA**

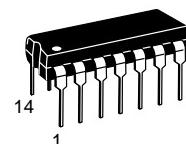
## 3-2-2-3-INPUT AND-OR-INVERT GATE

**SN54/74LS54**

3-2-2-3-INPUT  
AND-OR-INVERT GATE  
LOW POWER SCHOTTKY



J SUFFIX  
CERAMIC  
CASE 632-08



N SUFFIX  
PLASTIC  
CASE 646-06



D SUFFIX  
SOIC  
CASE 751A-02

### ORDERING INFORMATION

SN54LSXXJ Ceramic  
SN74LSXXN Plastic  
SN74LSXXD SOIC

### GUARANTEED OPERATING RANGES

Symbol	Parameter	54	Min	Typ	Max	Unit
V <sub>CC</sub>	Supply Voltage	54 74	4.5 4.75	5.0 5.0	5.5 5.25	V
T <sub>A</sub>	Operating Ambient Temperature Range	54 74	-55 0	25 25	125 70	°C
I <sub>OH</sub>	Output Current — High	54, 74			-0.4	mA
I <sub>OL</sub>	Output Current — Low	54 74			4.0 8.0	mA

# SN54/74LS54

## DC CHARACTERISTICS OVER OPERATING TEMPERATURE RANGE (unless otherwise specified)

Symbol	Parameter	Limits			Unit	Test Conditions
		Min	Typ	Max		
V <sub>IH</sub>	Input HIGH Voltage	2.0			V	Guaranteed Input HIGH Voltage for All Inputs
V <sub>IL</sub>	Input LOW Voltage	54		0.7	V	Guaranteed Input LOW Voltage for All Inputs
		74		0.8		
V <sub>IK</sub>	Input Clamp Diode Voltage		-0.65	-1.5	V	V <sub>CC</sub> = MIN, I <sub>IN</sub> = -18 mA
V <sub>OH</sub>	Output HIGH Voltage	54	2.5	3.5	V	V <sub>CC</sub> = MIN, I <sub>OH</sub> = MAX, V <sub>IN</sub> = V <sub>IH</sub> or V <sub>IL</sub> per Truth Table
		74	2.7	3.5	V	
V <sub>OL</sub>	Output LOW Voltage	54, 74		0.25	V	I <sub>OL</sub> = 4.0 mA
		74		0.35	V	I <sub>OL</sub> = 8.0 mA
I <sub>IH</sub>	Input HIGH Current			20	µA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 2.7 V
				0.1	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 7.0 V
I <sub>IL</sub>	Input LOW Current			-0.4	mA	V <sub>CC</sub> = MAX, V <sub>IN</sub> = 0.4 V
I <sub>OS</sub>	Short Circuit Current (Note 1)	-20		-100	mA	V <sub>CC</sub> = MAX
I <sub>CC</sub>	Power Supply Current Total, Output HIGH Total, Output LOW			1.6	mA	V <sub>CC</sub> = MAX
				2.0		

Note 1: Not more than one output should be shorted at a time, nor for more than 1 second.

## AC CHARACTERISTICS (T<sub>A</sub> = 25°C)

Symbol	Parameter	Limits			Unit	Test Conditions
		Min	Typ	Max		
t <sub>PLH</sub>	Turn-Off Delay, Input to Output		12	20	ns	V <sub>CC</sub> = 5.0 V C <sub>L</sub> = 15 pF
t <sub>PHL</sub>	Turn-On Delay, Input to Output		12.5	20	ns	